

### **REMARKS**

Claims 1-14 are pending. Claims 1, 6, and 10 have been amended. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

#### ***Claim Rejections Under 35 U.S.C. § 112***

Claims 1-5 and 10-14 were rejected under 35 U.S.C. § 112, second paragraph, for containing minor informalities. Applicants have amended the claims to correct these informalities. Accordingly, Applicants respectfully submit that this rejection is moot.

#### ***Claim Rejections Under 35 U.S.C. § 101***

Claims 1-14 were rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Applicants respectfully submit that the claims are directed to statutory subject matter because these claims recite an invention that is within the technological arts and that produces a useful, concrete and tangible result as required by 35 U.S.C. § 101. Specifically, for example, claim 1-5 and 10-14 are apparatus claims that recite structural features and method claims 6-9 have a claimed practical application. See MPEP 2106 which states that claims define nonstatutory processes if they consist solely of mathematical operations without some claimed practical application. Additionally, accordingly to, for example, *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09(1980) – the expansive language of section 101 includes [a patentable subject matter] "anything under the sun that is made by man". Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

#### ***Claim Rejections Under 35 U.S.C. § 102***

Claims 1, 2, 4-6, 8, 10, 11, 13, and 14 were rejected under 35 U.S.C. § 102(e) over Tong et al. (U.S. Patent No. 6,744,744). Applicants respectfully traverse this rejection.

Amended claim 1 recites a turbo code encoder that includes a first convolutional encoder that generates N systematic bits and N first parity bits and a second convolutional encoder that generates N second parity bits. The 3N total bits are then input into a repeater which repeatedly outputs predefined bits among the 3N total bits such that the ratio of systematic bits to parity bits is at least one systematic bit to every one parity bit. In contrast, although Tong teaches that both parity and systematic bits can be repeated, Tong specifically teaches that the parity bits are repeated by a factor of 2 or 3 times that of the

systematic bits (See, for example, column 10, lines 10-18). As described in the present application, there is a performance difference between repeating the systematic bit at a ratio of at least 1 to 1 and the conventional algorithm (Tong) of increasing the distance between the codes (i.e., increasing the parity bits to 2 or three times that of the systematic bits). Therefore, the ratio of systematic bits to parity bits provides performance gains beyond merely matching the rate.

Accordingly, Tong fails to teach or even suggest, a repeater which repeatedly outputs predefined bits among the  $3N$  total bits such that the ratio of systematic bits to parity bits is at least one systematic bit to every one parity bit, as recited in amended claim 1.

Similarly, claims 6 and 10 are believed allowable for at least the reasons presented above with respect to claim 1 because claims 6 and 10 recite similar features to those discussed above with respect to claim 1.

Claims 2, 4, 5, 8, 11, 13, and 14 are believed allowable for at least the reasons presented above with respect to claims 1, 6, and 10 by virtue of their dependence upon claims 1, 6, and 10. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

#### ***Claim Rejections Under 35 U.S.C. § 103***

Claims 3, 7, 9, and 12 were rejected under 35 U.S.C. § 103(a) over Tong. Applicants respectfully traverse this rejection.

Claims 3, 7, and 9 are believed allowable for at least the reasons presented above with respect to claims 1, 6, and 10 by virtue of their dependence upon claims 1, 6, and 10 and because, as discussed above, Tong fails to teach or suggest at least the subject matter of claims 1, 6, and 10. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

#### ***Conclusion***


Therefore, all objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

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Should any issues remain unresolved, the Examiner is encouraged to contact the undersigned attorney for Applicants at the telephone number indicated below in order to expeditiously resolve any remaining issues.

Respectfully submitted,

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